ENERGY TECHNOLOGIES AND HEALTH

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Turbines

- Health and safety of other renewables

irritability, problems with concentration and memory

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- lower sleep efficiency (86% vs. 92%)
  - longer sleep onset latency (6 min vs. 4 min)
  - longer wake after sleep onset (42 min vs. 29 min)
- No statistically significant differences after adjustment for age and sex

Lane J, Bigelow P, Majowicz S, and McColl S. Exploring the impact wind turbine noise on sleep quality. Poster session presented at: Prescription for a healthy environment. 19th Annual A.D. Latornell Conservation Symposium; 2012 Nov 14-16; Alliston, ON.

- Different wind directions and speed
- Sensitive microphone (0.5Hz)

- Hard to determine which noises are the wind and which noises are wind turbines
- Results were inconclusive

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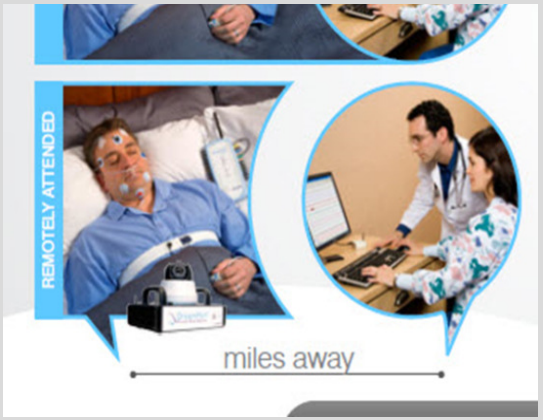

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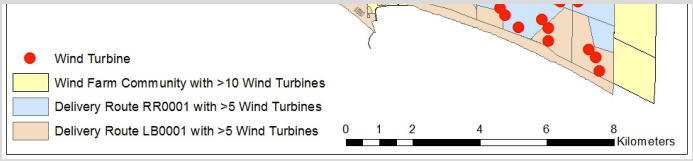
- Environmental Stressors
- Sleep
- Health and Well-Being

- Used standardized scales, questions from other surveys, some new questions

Christidis T, Paller C, Majowicz S, Bigelow P, Wilson A, Jamal S. (2013). Creating and Testing a Survey to Assess the Impact of Renewable Energy Technologies on Quality of Life. *Environmental Health Review*. 56:103-111

- No names or addresses
- How do we reach them?
  - Selected Canada Post delivery routes
  - Delivered approximately 5000 surveys using Canada Post AdMail



Related manuscripts under review. Thesis available at: https://uwspace.uwaterloo.ca/bitstream/handle/10012/8268/Paller_Claire.pdf?sequence=3

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(±4.34)

- Age 55.33 years (±14.94)
- Median income $60 000
- Proportion male 52%, married 79%*, post-secondary 59%*

- Vertigo was related to distance ($p < 0.001$) ($R^2 = 0.11$)
- Worthy of more research, limitations
- Ongoing analysis of other survey sections

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etc.

- psychological and sociological dimensions

- Physical Health Assessment
  - Health history, current health
  - Cortisol: saliva and hair samples

turbine had higher cortisol levels

	Participants living <=500m from a wind turbine (average nmol/dl) n = 17	Participants living <500m from a wind turbine (average nmol/dl) n = 6	t Value	Pr > |t|
30 mins after waking	8.56 ± 10.04	15.53 ± 5.55	-2.10**	0.05**
90 mins after waking	4.08 ± 4.05	6.03 ± 4.85	-0.89	0.40
Before sleep	1.22 ± 1.30	0.96 ± 0.43	0.72	0.48

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- four provincial/federal newspapers

Deignan, B., Harvey, E., Hoffman-Goetz, L. (2013). Fright factors about wind turbines and health in Ontario newspapers before and after the Green Energy Act. *Health, Risk & Society*, 15(3), 234-250.

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proportion of negative articles than provincial or national newspapers

- Non-health concerns (environmental damage, property values, aesthetic concerns, financial burden) juxtaposed with health issues
- May produce fear and anxiety in readers

Deignan, B., Harvey, E., Hoffman-Goetz, L. (2013). Fright factors about wind turbines and health in Ontario newspapers before and after the Green Energy Act. *Health, Risk & Society*, 15(3), 234-250.

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reported sleep quality and vertigo
  - Limitations to these findings
- Health interviews ongoing
- Media amplifies perceived health risks

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- Low response rate
  - Self-reported
- Health assessments
  - Small sample

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Threats to internal validity

- Are we confident in stating a relationship? Are there alternate explanations?
- Sources of bias
  - Is our sample reflective of the population of interest?
  - Are participants answering truthfully?

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